BRUHAT BANGALORE MAHANAGARA PALIKE
PROJECT DIVISION, YELAHANKA ZONE

Name of Work:
Developments works to be under taken in Ward No.05 of BBMP around Solid Waste Disposal Processing units Bellahalli, Bagaluru and Kattigenahalli Byatarayanapura Constituency.

TEST REPORTS

SIXTH AND FINAL BILL

TEJUS CONSULTANTS
CONSULTING ENGINEERS AND DESIGNERS
No.45, Present BBMP No.1204/45, Old No.1204, 1st Main,
MRCR Layout, Bangalore-560040
email: tejusconsultants@gmail.com

TEJUS

BITUMEN CONTENT AND GRADATION DETERMINATION OF DENSE BITUMINOUS MACADAM MIX		
Name of Work	:	Developments works to be under taken in Ward No 05 of BBMP around Solid Waste Disposal Processing units Bellahalli, Bagaluru and Kattigenahalli Byatarayanapura Constituency
Client	:	Bruhat Bengaluru Mahanagara Palike
Consultant	:	TEJUS CONSULTANTS Basaveshwar Nagar Bangalore
Contractor	:	AG Narayanaswamy
Date of Testing	:	02-03-2023
Type of Mix	:	DBM
Sample I/D	:	DBM-3

DETERMINATION OF BITUMEN CONTENT

Description	Trail 1	Trail 2
1. Weight of Mixture before extraction, g	850	938
2. Weight of Mixture after extraction, g	813	897
3. Weight of Bitumen	37	41
4. Weight of filter paper before extraction, g	2.00	2.00
5. Weight of filter paper after extraction, g	4.00	4.00
6. Weight of fines, g	2.00	2.00
7. Weight of Bitumen & fines	39.00	43.00
8. Bitumen content in %	4.59	4.58
9. Average Bitumen content in %	4.59	
10. Minimum Bitumen content in %	4.50	

GRADATION FOR DBM AFTER EXTRACTION

(As per MORT&H 500-10,Grading-2)

Sample Location:	Basavalingappa nagar	**Date of Sampling:**	**12-03-2023**
		Date of testing:	**12-03-2023**
Type of material & Purpose:	DBM	**Oven Dry Wt.(gms):**	813

IS Sieve size in mm	Weight retained	Cummulative weight retained (gm)	Cummulative % of retained	Cummulative % of passing	Specification limits
37.50	0.0	0.0	0.00	100.00	100.00
26.50	36.0	36.0	4.43	95.57	90-100
19.00	125.0	161.0	19.80	80.20	71-95
13.20	113.0	274.0	33.70	66.30	56-80
4.750	145.0	419.0	51.54	48.46	38-54
2.360	98.0	517.0	63.59	36.41	28-42
0.300	176.0	693.0	85.24	14.76	7-21
0.075	63.0	756.0	92.99	7.01	2-8
Pan	57.0	813.0			
Total	813.0				

Note:

1. The report shall not be reproduced, except in full, without the written approval of the laboratory.
2. The results indicated above are based on the tests carried out on the samples collected at site/ received in the laboratory.
3. Any Query regarding the report must be reported reported within 15days from the date of testing.
4. The material used in the site satisfied the standard of MORTH's 5th revision and hence can be used in the work.

Asst. Executive Engineer
Project Division
Yelahanka Zone
BBMP, Bangalore - 92

TEJUS CONSULTANTS

Consultant's Representative

TEJUS

Project	Developments works to be under taken in Ward No.05 of BBMP around Solid Waste Disposal Processing units Bellahalli, Bagaluru and Kattigenahalli Byatarayanapura Constituency.		
Client	BRUHAT BANGALORE MAHANAGARA PALIKE		
Consultant	M/s Silicon Consultants		
Contractor	Sri.A G Narayanaswamy		
Field Dry Density test by Sand Replacement Method (As per IS 2720 (Part 28))			
Date of Testing	04-03-2023		
Layer no. or level	GSB layer		
Depth of hole	150mm		
Field density:	1	2	2
Chainage / Location	Tetra grand main road@45	Tetra grand main road@150	Tetra grand main road@240
Wt. of wet material from hole (Ww) gms.	5988	5981	5994
Wt. of sand+cylinder before pouring (w1) gms.	15000	15000	15000
Wt. of sand+cylinder after pouring (w2) gms.	10574	10581	10571
Wt. of sand in hole+ cone (w3) gms.	4426	4419	4429
Wt. of cone gms.	1080	1080	1080
Wt. of sand gms.	3346	3339	3349
Bulk density of sand (γs)gm/cc	1.32	1.32	1.32
Bulk density of material(i.e. wt. of the wet material) (γb)=(Ww/w4*(γs))gm/cc	2.36	2.36	2.36
Moisture meter reading(moisture content)	6.50	6.40	6.40
Result			
FDD(Wt.of the dry material)=(100γb/100+mc)gm/cc	2.22	2.22	2.22
MDD	2.25	2.25	2.25
OMC	6.30%	6.30%	6.30%
% compaction obtained	98.58	98.77	98.69
% compaction required	98%	98%	98%

Note:
1. The report shall not be reproduced, except in full, without the written approval of the laboratory.
2. The results indicated above are based on the tests carried out on the samples received in the laboratory/Site.
3. Any Query regarding the report must be reported reported within 15days from the date of testing.
4.The material used in the site satisfied the standard of MORTH's 5th revision and hence can be used in the work.

Authorised Signatory

Asst. Executive Engineer
Project Division
Yelahanka Zone
BBMP, Bangalore - 92

Project	Developments works to be under taken in Ward Nos of BBMP around Solid Waste Disposal Processing units Belahalli, Jigani and Kattigenahalli Byatarayanapura Constituency.
Client	
Consultant	Bruhat Bengaluru Mahanagara Palike
Contractor	TEJUS CONSULTANTS Basaveshwar Nagar Bangalore
	AG Narayanaswamy

Field Dry Density test by Sand Replacement Method (As per IS 2720 (Part 28)

Layer no. or level	**Date:** 07-03-2023	
Depth of hole	WMM I layer	
Field density:	200mm	
	1	**2**
Chainage / Location	**Basavalingappa nagar Main road'@120**	**Basavalingappa nagar Main road'@195**
Wt. of wet material from hole (Ww) gms.	5989	5973
Wt. of sand+cylinder before pouring (w1) gms.	15000	15000
Wt. of sand+cylinder after pouring (w2) gms.	10587	10586
Wt. of sand in hole+ cone (w3) gms.	4413	4414
Wt. of cone gms.	1080	1080
Wt. of sand gms.	3333	3334
Bulk density of sand (γs)gm/cc	1.32	1.32
Bulk density of material(i.e. wt. of the wet material) (γb)=(Ww/w4*(γs))gm/cc	2.37	2.36
Moisture meter reading(moisture content)	6.40	6.20
Result		
FDD(Wt.of the dry material)=(100γb/100+mc)gm/cc	2.23	2.23
MDD	2.27	2.27
OMC	6.10%	6.10%
% compaction obtained	98.20	98.10
% compaction required	98%	98%

Note:

1. The report shall not be reproduced, except in full, without the written approval of the laboratory.
2. The results indicated above are based on the tests carried out on the samples colleted at site/ received in the laboratory.
3. Any Query regarding the report must be reported reported within 15days from the date of testing.
4. The material used in the site satisfied the standard of MORTH's 5th revision and hence can be used in the work.

Consultant's Representative

Asst. Executive Engineer
Project Division
Yelahanka Zone
BBMP, Bangalore - 92

Project	Developments works to be under taken in Ward No.05 of BBMP around Solid Waste Disposal Processing units Bellahalli, Bagaluru and Kattigenahalli Byatarayanapura Constituency.
Client	Bruhat Bengaluru Mahanagara Palike
Consultant	TEJUS CONSULTANTS Basaveshwar Nagar Bangalore
Contractor	AG Narayanaswamy

Field Dry Density test by Sand Replacement Method (As per IS 2720 (Part 28)

Layer no. or level	**Date:**	07-03-2023
Depth of hole	WMM I layer	
Field density:	200mm	
	1	2
Chainage / Location	**Basavalingappa nagar'@45**	**Basavalingappa nagar'@75**
Wt. of wet material from hole (Ww) gms.	5981	5988
Wt. of sand+cylinder before pouring (w1) gms.	15000	15000
Wt. of sand+cylinder after pouring (w2) gms.	10599	10586
Wt. of sand in hole+ cone (w3) gms.	4401	4414
Wt. of cone gms.	1080	1080
Wt. of sand gms.	3321	3334
Bulk density of sand (γs)gm/cc	1.32	1.32
Bulk density of material(i.e. wt. of the wet material) (γb)=(Ww/w4*(γs))gm/cc	2.38	2.37
Moisture meter reading(moisture content)	6.40	6.20
Result		
FDD(Wt.of the dry material)=(100γb/100+mc)gm/cc	2.23	2.23
MDD	2.27	2.27
OMC	6.10%	6.10%
% compaction obtained	98.43	98.34
% compaction required	98%	98%

Note:

1. The report shall not be reproduced, except in full, without the written approval of the laboratory.
2. The results indicated above are based on the tests carried out on the samples colleted at site/ received in the laboratory.
3. Any Query regarding the report must be reported reported within 15days from the date of testing.
4. The material used in the site satisfied the standard of MORTH's 5th revision and hence can be used in the work.

Asst. Executive Engineer
Project Division
Yelahanka Zone
BBMP, Bangalore - 92

Consultant's Representative

TEJUS

Name of Work	:	Developments works to be under taken in Ward No 05 of BBMP around Solid Waste Disposal Processing units Bellahalli, Bagaluru and Kattigenahalli Byatarayanapura Constituency
Client	:	Bruhat Bengaluru Mahanagara Palike
Consultant	:	TEJUS CONSULTANTS, Basaveshwar Nagar Bangalore
Contractor	:	Sri AG Narayanaswamy
Date of Testing	:	07-03-2023
Type of Mix	:	WMM
Sample I/D	:	WMM 1

GRADATION FOR WMM
(As per MORT&H 400-11)

Sample Location:	Basavalingappa nagar	Date of Sampling:	06-03-2023
		Date of testing:	07-03-2023
Type of material & Purpose:	WMM	Oven Dry Wt.(gms):	10000.0

IS Sieve size in mm	Weight retained	Cummulative weight retained (gm)	Cummulative % of retained	Cummulative % of passing	Specification limits
53	0	0	0.00	100.00	100.00
45	366	366	3.66	96.34	95-100
22.4	1795	2161	21.61	78.39	60-80
11.2	2251	4412	44.12	55.88	40-60
4.75	2112	6524	65.24	34.76	25-40
2.36	1381	7905	79.05	20.95	15-30
0.6	774	8679	86.79	13.21	8.0-22.0
0.075	685	9364	93.64	6.36	0-8
Pan	518	9882			
Total	9882				

Note:

1. The report shall not be reproduced, except in full, without the written approval of the laboratory.
2. The results indicated above are based on the tests carried out on the samples colleted at site/received in the laboratory.
3. Any Query regarding the report must be reported reported within 15days from the date of testing.
4. The material used in the site satisfied the standard of MORTH's 5th revision and hence can be used in the work.

Consultant's Representative

Asst. Executive Engineer
Project Division
Yelahanka Zone
BBMP, Bangalore - 92

Project	Developments works to be under taken in Ward No.05 of BBMP around Solid Waste Disposal Processing unit, Jakkasandra, Bagaluru and Kattigenahalli Byatarayanapura Constituency.
Client	Bruhat Bengaluru Mahanagara Palike
Consultant	TEJUS CONSULTANTS Basaveshwar Nagar Bangalore
Contractor	AG Narayanaswamy

FLAKINESS AND ELONGATION INDICES (IS 2386, PART 1)

Type of Material		WMM		**Proposed Use**	**WMM**
Sample Location		Basavalingappa nagar		**Date of Sampling**	**06-03-2023**
				Date of Testing	**07-03-2023**
Passing through IS sieve, mm	**Retained on IS sieve, mm**	**Total wt. of aggregate retained on sieves (A) gms.**	**Wt. of aggregate passing from Flakiness gauge (B) gms**	**Wt. of aggregate retained on Flakiness gauge (C) gms**	**Wt. of aggregate retained on Elongation gauge after retained on Flakiness gauge(D)gms**
63.0	50.0	0	0	0	0
50.0	40.0	0	0	0	0
40.0	31.5	0	0	0	0
31.5	25.0	0	0	0	0
25.0	20.0	0	0	0	0
20.0	16.0	601	84	522	74
16.0	12.5	1131	123	975	119
12.5	10.0	780	57	728	56
10.0	6.3	627	72	572	52
Total		**3139**	**336**	**2797**	**301**

Note: Minimum 200 Pcs should be taken on each fraction of test

Flakiness Index(%):	10.70
Elongation Index(%):	10.76
Combined FI+EL (%)	21.47

Note:

1. The report shall not be reproduced, except in full, without the written approval of the laboratory.
2. The results indicated above are based on the tests carried out on the samples colleted at site/ received in the laboratory.
3. Any Query regarding the report must be reported reported within 15days from the date of testing.
4. The material used in the site satisfied the standard of MORTH's 5th revision and hence can be used in the work.

Consultant's Representative

Asst. Executive Engineer
Project Division
Yelahanka Zone
BBMP, Bangalore - 92

TEJUS
CONSULTANTS

Project	Developments works to be under taken in Ward No.05 of BBMP around Solid Waste Disposal Processing units Bellahalli, Bagaluru and Kattigenahalli Byatarayanapura Constituency.
Client	Bruhat Bengaluru Mahanagara Palike
Consultant	TEJUS CONSULTANTS Basaveshwar Nagar Bangalore
Contractor	AG Narayanaswamy

AGGREGATE IMPACT VALUE (IS: 2386 Part - 4)

Proposed Use	WMM		
Sample Location	Basavalingappa nagar	**Date of Sampling**	**06-03-2023**
		Date of Testing	**07-03-2023**

Sl. No.	Description		Test No. 1	Test No. 2	Test No. 3	Spec Limit (%)
1	Wt. of stone pieces (dry) passing IS Sieve 12.5mm but retained in IS sieve 10mm (gm)	(Wa)	348.00	361.00	352.00	
2	Wt. of the fraction retained in IS sieve 2.36mm after the impact test (gm)	(Wb)	267.00	276.00	268.00	
3	Wt. of the fraction passed in IS sieve 2.36mm after the impact test (gm)	(Wc)	81.00	85.00	84.00	
4	Aggregate Impact Value (%)	(Wc/Wa)*100	23.28	23.55	23.86	
5	Average Aggregate impact value	(%)		23.56		Max - 30 %

Remarks :

✓ Satisfactory / Not Satisfactory

Note:

. The report shall not be reproduced, except in full, without the written approval of the laboratory.
. The results indicated above are based on the tests carried out on the samples colleted at site/received in the laboratory.
. Any Query regarding the report must be reported reported within 15days from the date of testing.
. The material used in the site satisfied the standard of MORTH's 5th revision and hence can be used in the work.

Consultant's Representative

Asst. Executive Engineer
Project Division
Yelahanka Zone
BBMP, Bangalore - 92

TEJUS
CONSULTANTS

Project	Developments works to be under taken in Ward No.05 of BBMP around Solid Waste Disposal Processing units Bellahalli, Bagaluru and Kattigenahalli Byatarayanapura Constituency.		
Client	BRUHAT BANGALORE MAHANAGARA PALIKE		
Consultant	M/s Tejus Consultants		
Contractor	Sri.A G Narayanaswamy		
Field Dry Density test by Sand Replacement Method (As per IS 2720 (Part 28))			
Date of Testing	**10-03-2023**		
Layer no. or level	GSB layer		
Depth of hole	200mm		
Field density:	1	2	2
Chainage	**Basavalingappa nagar main road@60**	**Basavalingappa nagar main road@165**	**Basavalingappa nagar main road@210**
Wt. of wet material from hole (Ww) gms.	5978	5962	5944
Wt. of sand+cylinder before pouring (w1) gms.	15000	15000	15000
Wt. of sand+cylinder after pouring (w2) gms.	10582	10595	10594
Wt. of sand in hole+ cone (w3) gms.	4418	4405	4406
Wt. of cone gms.	1080	1080	1080
Wt. of sand gms.	3338	3325	3326
Bulk density of sand (γs)gm/cc	1.32	1.32	1.32
Bulk density of material(i.e. wt. of the wet material) (γb)=(Ww/w4*(γs))gm/cc	2.36	2.37	2.36
Moisture meter reading(moisture content)	6.50	6.40	6.40
Result			
FDD(Wt.of the dry material)=(100γb/100+mc)gm/cc	2.22	2.22	2.22
MDD	2.25	2.25	2.25
OMC	6.30%	6.30%	6.30%
% compaction obtained	98.65	98.87	98.54
% compaction required	98%	98%	98%

Note:

1. The report shall not be reproduced, except in full, without the written approval of the laboratory.
2. The results indicated above are based on the tests carried out on the samples received in the laboratory/Site.
3. Any Query regarding the report must be reported reported within 15days from the date of testing.
4. The material used in the site satisfied the standard of MORTH's 5th revision and hence can be used in the work.

TEJUS CONSULTANTS

Authorised Signatory

Asst. Executive Engineer
Project Division
Yelahanka Zone
BBMP, Bangalore -92

TEJUS

Test Report on Cement

Project	Developments works to be under taken in Ward No.05 of BBMP around Solid Waste Disposal Processing units Bellahalli, Bagaluru and Kattigenahalli Byatarayanapura Constituency.
Client	Bruhat Bangalore Mahanagar Palike
Consultant	TEJUS CONSULTANTS
Contractor	Sri.A G Narayanaswamy
Sample ID	Cement (ACC Cement) OPC 43 Grade
Date of Sample Tested	10.03.2023
Sample Supplied By	Agency

Sl.No.	Descriptions	Test Method as per IS	Test Result	Requirements as per IS: 12269-1987
1	a) Initial Setting Time	IS-4031 (Part-5)	105 Minutes	Not Less than 30 Minutes
	b) Final Setting Time	IS-4031 (Part-5)	551 Minutes	Not More than 600 Minutes
2	Soundness	IS-4031 (Part-3) By the Le-Chatelier method	7 mm	Not More than 10 mm
3	Standard Consistency	IS-4031 (Part-4)	27.00%	25 % to 35

Note:

1. The report shall not be reproduced, except in full, without the written approval of the laboratory.
2. The results indicated above are based on the tests carried out on the samples received in the laboratory /Site.
3. Any Query regarding the report must be reported reported within 15days from the date of testing.

TEJUS CONSULTANTS

Authorised Signatory

Asst. Executive Engineer
Project Division
Yelahanka Zone
BBMP, Bangalore - 92

TEJUS CONSULTANTS
No. 45, Present BBMP No. 1204/45, Old no. 1204, 1st main, MRCR Layout, Bangalore 560040, Ph : 9611192254, 9611644110, tejusconsultants@gmail.com

TEJUS

Clients	BRUHAT BENGALORE MAHANAGARA PALIKE
Project	Developments works to be under taken in Ward No.05 of BBMP around Solid Waste Disposal Processing units Bellahalli, Bagaluru and Kattigenahalli Byatarayanapura Constituency.
Consultants	TEJUS CONSULTANTS Basaveshwar Nagar Bangalore
Contractor	SI.A.G Narayanaswamy

TEST REPORT

SPECIFIC GRAVITY AND WATER ABSORPTION

FINE AGGREGATE (IS-2386-PART-3)

Type of Material	Fine aggregate (M sand)	Proposed Use	PCC
Location/Source	At Laboratory	Date of Sampling	09.03.2023
Period of Soaking	24 hours	Date of Testing	10.03.2023

Sl. No.	Test Property	TRIAL - 1	TRIAL - 2	TRIAL - 3	
A	Weight of sturated surface dry sample gm.	663	637	645	
B	Weight of oven - dry sample gm.	654	628	637	
C	Weight of Pycnometer Filled with water gm	1275	1275	1275	
D	Weight of Pycnometer + sample + water gm	1695	1676	1680	
E	Bulk specific gravity $\frac{B}{(C+A-D)}$	2.691	2.661	2.654	2.669
G	Absorption (%) $\frac{(A-B)*100}{B}$	1.376	1.433	1.256	1.355

Note:

1. The report shall not be reproduced, except in full, without the written approval of the laboratory.
2. The results indicated above are based on the tests carried out on the samples received in the laboratory /Site.
3. Any Query regarding the report must be reported reported within 15days from the date of testing.
4. The material used in the site satisfied the standard of MORTH's 5th revision and hence can be used in the work.

Asst. Executive Engineer
Project Division
Yelahanka Zone
BBMP, Bangalore - 92

TEJUS CONSULTANTS

Authorised Signatory

TEJUS
CONSULTANTS

TEST REPORT

Clients	Bruhat Bangalore Mahanagara Palike
Project	Developments works to be under taken in Ward No.05 of BBMP around Solid Waste Disposal Processing units Bellahalli, Bagaluru and Kattigenahalli Byatarayanapura Constituency.
Consultants	TEJUS CONSULTANTS Basaveshwar Nagar Bangalore
Contractor	Sri.A G Narayanaswamy

SIEVE ANALYSIS

Total Weight:	3000 gms				
Type of Material	Fine aggregate (M sand)		Proposed Use	PCC	
Sample Location	3rd Cross Maruthi Layout(LHS)		Date of Sampling	10.03.2023	
			Date of Testing	10.03.2023	
IS Sieve Size	Weight Retained	Cum. Weight Retained	Cum. % Retained	Cum. % Passing	Spec. Limit (%) Passing (Zone-II)
10.00 mm	0	0	0	100.00	100
4.75 mm	218	218	7.27	92.73	90 - 100
2.36 mm	308	526	17.53	82.47	75 - 100
1.18 mm	412	938	31.27	68.73	55 - 90
0.600 mm	488	1426	47.53	52.47	35 -59
0.300 mm	785	2211	73.70	26.30	8-30
0.150 mm	536	2747	91.57	8.43	0 - 10
Pan	253	3000			-

Remarks : ✓ Satisfactory / Not Satisfactory

Note:

1. The report shall not be reproduced, except in full, without the written approval of the laboratory.
2. The results indicated above are based on the tests carried out on the samples received in the laboratory/Site.
3. Any Query regarding the report must be reported reported within 15days from the date of testing.
4. The material used in the site satisfied the standard of MORTH's 5th revision and hence can be used in the work.

Asst. Executive Engineer
Project Division
Yelahanka Zone
BBMP, Bangalore - 92

Authorised Signatory

TEJUS

TEST REPORT

Clients	Bruhath Bangalore Mahanagara Palike
Project	Developments works to be under taken in Ward No.05 of BBMP around Solid Waste Disposal Processing units Bellahalli, Bagaluru and Kattigenahalli Byatarayanapura Constituency.
Consultants	TEJUS CONSULTANTS
Contractor	Sri.A G Narayanaswamy
Total Weight in gm:	3000

SIEVE ANALYSIS

Type of Material	40 mm down size	**Proposed Use**	PCC
Sample Location	At Site	**Date of Sampling**	09-03-2023
		Date of Testing	10-03-2023

IS Sieve Size	Weight Retained in gm	Cum. Weight Retained in gm	Cumulative Weight Retained in %	Cumulative Weight Passing in %	Specific Limits as per IS 383-1970 (RA-2007) % of Passing For Graded Aggregate of Nominal Size
80.00mm	0	0	0.00	100.00	100
63.00mm	0	0	0.00	100.00	-
40.00mm	77	77	2.57	97.43	95-100
20.00mm	1384	1461	48.70	51.30	30-70
10.00mm	971	2432	81.07	18.93	10-35
4.75mm	447	2879	95.97	4.03	0-5
Pan	121	3000	100.00	0.00	

Remarks : Satisfactory / Not Satisfactory

Note:
1. The report shall not be reproduced, except in full, without the written approval of the laboratory.
2. The results indicated above are based on the tests carried out on the samples received in the laboratory/Site.
3. Any Query regarding the report must be reported reported within 15days from the date of testing.
4.The material used in the site satisfied the standard of MORTH's 5th revision and hence can be used in the work.

Asst. Executive Engineer
Project Division
Yelahanka Zone
BBMP, Bangalore - 92

TEJUS CONSULTANTS

Authorised Signatory

TEJUS CONSULTANTS
No 45, Present BBMP No. 1204/45, Old no. 1204, 1st main, MRCR Layout, Bangalore 560040, Ph : 9611192254, 9611644110, tejusconsultants@gmail.com

TEJUS

GRADATION FOR GSB
(As per MORT&H 400-1,Grading-II)

Name of Work	:	Developments works to be under taken in Ward No.05 of BBMP around Solid Waste Disposal Processing units Bellahalli, Bagaluru and Kattigenahalli Byatarayanapura Constituency.
Client	:	BRUHAT BANGALORE MAHANAGARA PALIKE
Consultant	:	M/s Tejus Consultants
Contractor	:	Sri A G Narayanaswamy
Date of Testing	:	10-3-2023
Type of Mix	:	GSB
Sample I/D	:	GSB2

Sample Location:	basavalingappa nagar	Date of Sampling:	09-03-2023	
Type of material & Purpose:	GSB	Date of testing:	10-3-2023	
		Oven Dry Wt.(gms):	10000.0	

IS Sieve size in mm	Weight retained	Cummulative weight retained (gm)	Cummulative % of retained	Cummulative % of passing	Specification limits
75	0	0	0.00	100.00	-
53	0	0	0.00	100.00	100.00
26.5	2215	2215	22.15	77.85	70-100
9.5	2558	4773	47.73	52.27	50-80
4.75	856	5629	56.29	43.71	40-65
2.36	1205	6834	68.34	31.66	30-50
0.425	1922	8756	87.56	12.44	10-15
0.075	812	9568	95.68	4.32	<5
Pan	432.0				
Total	10000.0				

Note:
1. The report shall not be reproduced, except in full, without the written approval of the laboratory.
2. The results indicated above are based on the tests carried out on the samples received in the laboratory/Site.
3. Any Query regarding the report must be reported reported within 15days from the date of testing.
4.The material used in the site satisfied the standard of MORTH's 5th revision and hence can be used in the work.

TEJUS CONSULTANTS

Authorised Signatory

Asst. Executive Engineer
Project Division
Yelahanka Zone
BBMP, Bangalore - 92

TEJUS CONSULTANTS
No. 45, Present BBMP No. 1204/45, Old no. 1204, 1st main, MRCR Layout, Bangalore 560040, Ph : 9611192254, 9611644110, tejusconsultants@gmail.com

TEJUS

Project	Developments works to be under taken in Ward No.05 of BBMP around Solid Waste Disposal Processing units Bellahalli, Bagaluru and Kattigenahalli Byatarayanapura Constituency.
Client	Bruhat Bengaluru Mahanagara Palike
Consultant	TEJUS CONSULTANTS Basaveshwar Nagar Bangalore
Contractor	AG Narayanaswamy

AGGREGATE IMPACT VALUE (IS: 2386 Part - 4)

Proposed Use	DBM		
Sample Location	At plant	**Date of Sampling**	**12-03-2023**
		Date of Testing	**12-03-2023**

Sl. No.	**Description**		**Test No.**			**Spec Limit (%)**
			1	**2**	**3**	
1	Wt. of stone pieces (dry) passing IS Sieve 12.5mm but retained in IS sieve 10mm (gm)	(Wa)	394.00	378.00	366.00	
2	Wt. of the fraction retained in IS sieve 2.36mm after the impact test (gm)	(Wb)	302.00	288.00	280.00	
3	Wt. of the fraction passed in IS sieve 2.36mm after the impact test (gm)	(Wc)	92.00	90.00	86.00	
4	Aggregate Impact Value (%)	(Wc/Wa)*100	23.35	23.81	23.50	
5	Average Aggregate impact value	(%)	23.55			Max - 30 %

Remarks : Satisfactory / Not Satisfactory

Note:

1. The report shall not be reproduced, except in full, without the written approval of the laboratory.
2. The results indicated above are based on the tests carried out on the samples collected at site/ received in the laboratory.
3. Any Query regarding the report must be reported reported within 15days from the date of testing.
4. The material used in the site satisfied the standard of MORTH's 5th revision and hence in the work.

Asst. Executive Engineer
Project Division
Yelahanka Zone
BBMP, Bangalore - 92

Consultant's Representative

TEJUS
CONSULTANTS

DETERMINATION OF RATE OF SPREAD TACK COAT				
Name of Work :	Developments works to be under taken in Ward No.05 of BBMP around Solid Waste Disposal Processing units Bellahalli, Bagaluru and Kattigenahalli Byatarayanapura Constituency.			
Client :	BRUHAT BANGALORE MAHANAGARA PALIKE			
Consultant :	M/s Tejus Consultants			
Contractor :	AG Narayanaswamy			
Date of Testing :	12-03-2022			
Type of Mix :	Tack coat			
Sample I/D :	3			
Location :	Basavalingappa nagar			
Determination	**Unit**	**Test No**		
		1	**2**	**3**
Loacation	**Chainage**	**@30**	**@40**	**@60**
Size of Plate (mxm)	Mt	0.30 x .30	0.30 x .30	0.30 x .30
Area of Plate (a)	Sq.mtr	0.09	0.09	0.09
Initial Wt of empty Plate (b)	Kg	0.795	0.802	0.813
Final weight of plate after application of tack Coat (c)	Kg	0.818	0.825	0.836
Weight of tack Coat (d=c-b)	Kg	0.023	0.023	0.023
Rate of spread of tack coat	Kg/sq.m	0.253	0.256	0.252
Average	Kg/sq.m	0.254		
Specified Limit	Kg/sq.m	**0.250 Kg/sq.m**		

Note:
1. The report shall not be reproduced, except in full, without the written approval of the laboratory.
2. The results indicated above are based on the tests carried out on the samples collected at site/ received in the laboratory.
3. Any Query regarding the report must be reported reported within 15days from the date of testing.
4.The material used in the site satisfied the standard of MORTH's 5th revision and hence can be used in the work.

Consultant's Representative

Asst. Executive Engineer
Project Division
Yelahanka Zone
BBMP, Bangalore - 92

TEJUS

Project	Developments works to be under taken in Ward No.05 of BBMP around Solid Waste Disposal Processing units Bellahalli, Bagaluru and Kattigenahalli Byatarayanapura Constituency.
Client	Bruhat Bengaluru Mahanagara Palike
Consultant	TEJUS CONSULTANTS Basaveshwar Nagar Bangalore
Contractor	AG Narayanaswamy

FLAKINESS AND ELONGATION INDICES (IS 2386, PART 1)

Type of Material	DBM	**Proposed Use**	**DBM**
Sample Location	At plant	**Date of Sampling**	**12-03-2023**
		Date of Testing	**12-03-2023**

Size of aggregate		**Flakiness Index**		**Elongation Index**	
Passing through IS sieve, mm	**Retained on IS sieve, mm**	**Total wt. of aggregate retained on sieves (A) gms.**	**Wt. of aggregate passing from Flakiness gauge (B) gms**	**Wt. of aggregate retained on Flakiness gauge (C) gms**	**Wt. of aggregate retained on Elongation gauge after retained on Flakiness gauge(D)gms**
63.0	50.0	0	0	0	0
50.0	40.0	0	0	0	0
40.0	31.5	7230	645	7033	384
31.5	25.0	4235	251	3516	291
25.0	20.0	2415	271	1994	224
20.0	16.0	1522	335	945	263
16.0	12.5	465	112	542	156
12.5	10.0	425	56	256	94
10.0	6.3	122	65	88	68
Total		**16414**	**1735**	**14374**	**1480**

Results

Flakiness Index(%):	10.57
Elongation Index(%):	10.30
Combined FI+EL (%)	20.87

Note:

1. The report shall not be reproduced, except in full, without the written approval of the laboratory.
2. The results indicated above are based on the tests carried out on the samples collected at site/ received in the laboratory.
3. Any Query regarding the report must be reported reported within 15days from the date of testing.
4. The material used in the site satisfied the standard of MORTH's 5th revision and hence can be used in the work.

Asst. Executive Engineer
Project Division
Yelahanka Zone
BBMP, Bangalore - 92

Consultant's Representative

TEJUS

DETERMINATION OF RATE OF SPREAD TACK COAT

Name of Work :	Developments works to be under taken in Ward No.95 of BBMP around Solid Waste Disposal Processing units Bellahalli, Bagaluru and Kattigenahalli Byatarayanapura Constituency.
Client :	BRUHAT BANGALORE MAHANAGARA PALIKE
Consultant :	M/s Tejus Consultants
Contractor :	AG Narayanaswamy
Date of Testing :	14-03-2023
Type of Mix :	Tack coat
Sample I/D :	3
Location :	Basavalingappa nagar main road

Determination	Unit	Test No		
		1	2	3
Location :	**Chainage**	**@30**	**@60**	**@90**
Size of Plate (mxm)	Mt	0.30 x .30	0.30 x .30	0.30 x .30
Area of Plate (a)	Sq.mtr	0.09	0.09	0.09
Initial Wt of empty Plate (b)	Kg	0.775	0.745	0.762
Final weight of plate after application of tack Coat (c)	Kg	0.798	0.768	0.785
Weight of tack Coat (d=c-b)	Kg	0.023	0.023	0.023
Rate of spread of tack coat	Kg/sq.m	0.253	0.252	0.253
Average	Kg/sq.m	0.253		
Specified Limit	Kg/sq.m	**0.250 Kg/sq.m**		

Note:

1. The report shall not be reproduced, except in full, without the written approval of the laboratory.
2. The results indicated above are based on the tests carried out on the samples collected at site/ received in the laboratory.
3. Any Query regarding the report must be reported reported within 15days from the date of testing.
4. The material used in the site satisfied the standard of MORTH's 5th revision and hence can be used in the work.

Asst. Executive Engineer
Project Division
Yelahanka Zone
BBMP, Bangalore - 92

TEJUS CONSULTANTS

Authorised Signatory

TEJUS
CONSULTANTS

Project	Developments works to be under taken in Ward No.05 of BBMP around Solid Waste Disposal Processing units Bellahalli, Bagaluru and Kattigenahalli Byatarayanapura Constituency.
Client	BRUHAT BANGALORE MAHANAGARA PALIKE
Consultant	M/s Tejus Consultants
Contractor	Sri.A G Narayanaswamy

Field Dry Density test by Sand Replacement Method (As per IS 2720 (Part 28))

Date of Testing	**17-03-2023**		
Layer no. or level	GSB layer		
Depth of hole	200mm		
Field density:	1	2	2
Chainage	**Maruthi Layout Main Road@30**	**2nd cross v nagenalli)@135**	**2nd cross v nagenalli)@180**
Wt. of wet material from hole (Ww) gms.	5968	5915	5968
Wt. of sand+cylinder before pouring (w1) gms.	15000	15000	15000
Wt. of sand+cylinder after pouring (w2) gms.	10579	10612	10578
Wt. of sand in hole+ cone (w3) gms.	4421	4388	4422
Wt. of cone gms.	1080	1080	1080
Wt. of sand gms.	3341	3308	3342
Bulk density of sand (ys)gm/cc	1.32	1.32	1.32
Bulk density of material(i.e. wt. of the wet material) (yb)=(Ww/w4*(ys))gm/cc	2.36	2.36	2.36
Moisture meter reading(moisture content)	6.50	6.40	6.50
Result			
FDD(Wt.of the dry material)=(100yb/100+mc)gm/cc	2.21	2.22	2.21
MDD	2.25	2.25	2.25
OMC	6.30%	6.30%	6.30%
% compaction obtained	98.40	98.59	98.37
% compaction required	98%	98%	98%

Note:

1. The report shall not be reproduced, except in full, without the written approval of the laboratory.
2. The results indicated above are based on the tests carried out on the samples received in the laboratory/Site.
3. Any Query regarding the report must be reported reported within 15days from the date of testing.

Asst. Executive Engineer
Project Division
Yelahanka Zone
BBMP, Bangalore - 92

Authorised Signatory

TEJUS CONSULTANTS

GRADATION FOR GSB
(As per MORT&H 400-1,Grading-II)

Name of Work	:	Developments works to be under taken in Ward No.05 of BBMP around Solid Waste Disposal Processing units Bellahalli, Bagaluru and Kattigenahalli Byatarayanapura Constituency.
Client	:	BRUHAT BANGALORE MAHANAGARA PALIKE
Consultant	:	M/s Tejus Consultants
Contractor	:	Sri.A G Narayanaswamy
Date of Testing	:	17-03-2023
Type of Mix	:	GSB
Sample I/D	:	GSB1

Sample Location:	maruthi layout	Date of Sampling:	16-03-2023	
		Date of testing:	17-03-2023	
Type of material & Purpose:	GSB	Oven Dry Wt.(gms):	10000.0	

IS Sieve size in mm	Weight retained	Cummulative weight retained (gm)	Cummulative % of retained	Cummulative % of passing	Specification limits
75	0	0	0.00	100.00	-
53	0	0	0.00	100.00	100.00
26.5	2176	2176	21.76	78.24	70-100
9.5	2405	4581	45.81	54.19	50-80
4.75	988	5569	55.69	44.31	40-65
2.36	1253	6822	68.22	31.78	30-50
0.425	1911	8733	87.33	12.67	10-15
0.075	822	9555	95.55	4.45	<5
Pan	445.0				
Total	10000.0				

Note:
1. The report shall not be reproduced, except in full, without the written approval of the laboratory.
2. The results indicated above are based on the tests carried out on the samples received in the laboratory/Site.
3. Any Query regarding the report must be reported reported within 15days from the date of testing.
4.The material used in the site satisfied the standard of MORTH's 5th revision and hence can be used in the work.

Asst. Executive Engineer
Project Division
Yelahanka Zone
BBMP, Bangalore - 92

TEJUS CONSULTANTS

Authorised Signatory

TEJUS
CONSULTANTS

Test Report on Cement

Project	Developments works to be under taken in Ward No.05 of BBMP around Solid Waste Disposal Processing units Bellahalli, Bagaluru and Kattigenahalli Byatarayanapura Constituency.
Client	Bruhat Bangalore Mahanagar Palike
Consultant	TEJUS CONSULTANTS
Contractor	Sri.A G Narayanaswamy
Sample ID	Cement (OPC 43 Grade)
Date of Sample Tested	21-03-2023
Sample Supplied By	Agency

Sl.No.	Descriptions	Test Method as per IS	Test Result	Requirements as per IS: 12269-1987
1	a) Initial Setting Time	IS-4031 (Part-5)	105 Minutes	Not Less than 30 Minutes
	b) Final Setting Time	IS-4031 (Part-5)	445 Minutes	Not More than 600 Minutes
2	Soundness	IS-4031 (Part-3) By the Le-Chatelier method	8 mm	Not More than 10 mm
3	Standard Consistency	IS-4031 (Part-4)	28.00%	25%- 35%

Remarks : ✓ Satisfactory / Not Satisfactory

Note:

1. The report shall not be reproduced, except in full, without the written approval of the laboratory.
2. The results indicated above are based on the tests carried out on the samples colleted at site/received in the laboratory.
3. Any Query regarding the report must be reported reported within 15days from the date of testing.
4. The material used in the site satisfied the standard of MORTH's 5th revision and hence can be used in the work.

Asst. Executive Engineer
Project Division
Yelahanka Zone
BBMP, Bangalore - 92

Consultant's Representative

TEJUS
CONSULTANTS

TEST REPORT

Clients	BRUHAT BENGALORE MAHANAGARA PALIKE
Project	Developments works to be under taken in Ward No.05 of BBMP around Solid Waste Disposal Processing units Bellahalli, Bagaluru and Kattigenahalli Byatarayanapura Constituency.
Consultants	TEJUS CONSULTANTS
Contractor	Sri.A G Narayanaswamy

SPECIFIC GRAVITY AND WATER ABSORPTION

FINE AGGREGATE (IS-2386-PART-3)

Type of Material	**M sand**	**Proposed Use**	Concrete
Location/Source	**At Plant/site**	**Date of Sampling**	20-03-2023
Period of Soaking	**24 hours**	**Date of Testing**	21-03-2023

Sl. No.	Test Property		TRIAL - 1	TRIAL - 2	TRIAL - 3	Average
A	Weight of sturated surface dry sample gm.		661	640	669	
B	Weight of oven - dry sample gm.		653	632	661	
C	Weight of Pycnometer Filled with water gm		1275	1275	1275	
D	Weight of Pycnometer + sample + water gm		1692	1678	1696	
E	Bulk specific gravity	B	2.676	2.667	2.665	**2.669**
		(C + A - D)				
G	Absorption (%)	(A - B) *100	1.225	1.266	1.210	**1.234**
		B				

Remarks : ✓ Satisfactory / Not Satisfactory

Note:

1. The report shall not be reproduced, except in full, without the written approval of the laboratory.
2. The results indicated above are based on the tests carried out on the samples colleted at site/received in the laboratory.
3. Any Query regarding the report must be reported reported within 15days from the date of testing.
4. The material used in the site satisfied the standard of MORTH's 5th revision and hence can be used in the work.

Asst. Executive Engineer
Project Division
Yelahanka Zone
BBMP, Bangalore

Consultant's Representative

TEST REPORT

Clients	Bruhat Bangalore Mahanagara Palike
Project	Developments works to be under taken in Ward No.05 of BBMP around Solid Waste Disposal Processing units Bellahalli, Bagaluru and Kattigenahalli Byatarayanapura Constituency.
Consultants	TEJUS CONSULTANTS
Contractor	Sri.A G Narayanaswamy

SIEVE ANALYSIS

Total Weight:	3000 gms				
Type of Materia	M sand		**Proposed Use**	Concrete	
Sample Location	At Plant		**Date of Sampling**	21-03-2023	
			Date of Testing	21-03-2023	
IS Sieve Size	**Weight Retained**	**Cum. Weight Retained**	**Cum. % Retained**	**Cum. % Passing**	**Spec. Limit (%) Passing (Zone-II)**
10.00 mm	0	0	0	100.00	**100**
4.75 mm	235	235	7.83	92.17	**90 - 100**
2.36 mm	278	513	17.10	82.90	**75 - 100**
1.18 mm	504	1017	33.90	66.10	**55 - 90**
0.600 mm	537	1554	51.80	48.20	**35 -59**
0.300 mm	661	2215	73.83	26.17	**8-30**
0.150 mm	532	2747	91.57	8.43	**0 - 10**
Pan	253	3000			**-**

Remarks : Satisfactory / Not Satisfactory

Note:

1. The report shall not be reproduced, except in full, without the written approval of the laboratory.
2. The results indicated above are based on the tests carried out on the samples colleted at site/received in the laboratory
3. Any Query regarding the report must be reported reported within 15days from the date of testing.
4. The material used in the site satisfied the standard of MORTH's 5th revision and hence can be used in the work.

Asst. Executive Engineer
Project Division
Yelahanka Zone
BBMP, Bangalore - 92

TEJUS CONSULTANTS

Consultant's Representative

TEJUS
CONSULTANTS

TEST REPORT

Clients	Bruhat Bangalore Mahanagara Palike
Project	Developments works to be under taken in Ward No.05 of BBMP around Solid Waste Disposal Processing units Bellahalli, Bagaluru and Kattigenahalli Byatarayanapura Constituency.
Consultants	TEJUS CONSULTANTS
Contractor	Sri.A G Narayanaswamy
Total Weight:	10000 gms

SIEVE ANALYSIS

Type of Material	12.5 mm down size	Proposed Use	Concrete
Sample Location	Plant	Date of Sampling	21-03-2023
		Date of Testing	21-03-2023

IS Sieve Size (in mm)	Weight Retained	Cum. Weight Retained	Cum. % Retained	Cum. % Passing	Spec. Limit (%) Passing
20.0	0	0	0	100	100
12.5	577	577	5.77	94.23	90-100
10.0	3345	3922	39.22	60.78	40-85
4.75	5412	9334	93.34	6.66	0-10
Pan	666	10000			

Remarks : ✓ Satisfactory / Not Satisfactory

Note:

1. The report shall not be reproduced, except in full, without the written approval of the laboratory.
2. The results indicated above are based on the tests carried out on the samples colleted at site/received in the laboratory
3. Any Query regarding the report must be reported reported within 15days from the date of testing.
4. The material used in the site satisfied the standard of MORTH's 5th revision and hence can be used in the work.

Asst. Executive Engineer
Project Division
Yelahanka Zone
BBMP, Bangalore - 97

TEJUS CONSULTANTS

Consultant's Representative

TEJUS
CONSULTANTS

Name of Work	:	Developments works to be under taken in Ward No.05 of BBMP around Solid Waste Disposal Processing units Bellahalli, Bagaluru and Kattigenahalli Byatarayanapura Constituency.
Client	:	Bruhat Bengaluru Mahanagara Palike
Consultant	:	TEJUS CONSULTANTS Basaveshwar Nagar Bangalore
Contractor	:	Sir AG Narayanaswamy
Date of Testing	:	21-03-2023
Type of Mix	:	WMM
Sample I/D	:	WMM 3

GRADATION FOR WMM
(As per MORT&H 400-11)

Sample Location:	Maruthi Layout Main Road	Date of Sampling:	20-03-2023
		Date of testing:	21-03-2023
Type of material & Purpose:	WMM	Oven Dry Wt.(gms):	10000.0

IS Sieve size in mm	Weight retained	Cummulative weight retained (gm)	Cummulative % of retained	Cummulative % of passing	Specification limits
53	0	0	0.00	100.00	100.00
45	371	371	3.71	96.29	95-100
22.4	2415	2786	27.86	72.14	60-80
11.2	2483	5269	52.69	47.31	40-60
4.75	1487.0	6756	67.56	32.44	25-40
2.36	799.0	7555	75.55	24.45	15-30
0.6	831.0	8386	83.86	16.14	8.0-22.0
0.075	994.0	9380	93.80	6.20	0-8
Pan	620.0	10000			
Total	10000.0				

Note:

1. The report shall not be reproduced, except in full, without the written approval of the laboratory.
2. The results indicated above are based on the tests carried out on the samples colleted at site/received in the laboratory.
3. Any Query regarding the report must be reported reported within 15days from the date of testing.
4. The material used in the site satisfied the standard of MORT&H's 5th revision and hence can be used in the work.

Asst. Executive Engineer
Project Division
Yelahanka Zone
BBMP, Bangalore - 92

TEJUS CONSULTANTS

Consultant's Representative

TEST REPORT

TEJUS CONSULTANTS

Clients	Bruhat Bangalore Mahanagara Palike
Project	Developments works to be under taken in Ward No.05 of BBMP around Solid Waste Disposal Processing units Bellahalli, Bagaluru and Kattigenahalli Byatarayanapura Constituency.
Consultants	TEJUS CONSULTANTS
Contractor	Sri.A G Narayanaswamy
Total Weight:	10000 gms

SIEVE ANALYSIS

Type of Material	20 mm down size	**Proposed Use**	Concrete	
Sample Location	At Plant	**Date of Sampling**	21-03-2023	
		Date of Testing	21-03-2023	

IS Sieve Size	Weight Retained	Cum. Weight Retained	Cum. % Retained	Cum. % Passing	Spec. Limit (%) Passing
40.00 mm	0	0	0	100	100
20.00 mm	262	262	2.62	97.38	95 - 100
10.00 mm	4895	5157	51.57	48.43	25 - 55
4.75 mm	4121	9278	92.78	7.22	0 - 10
Pan	722	10000			

Remarks : ✓ Satisfactory / Not Satisfactory

Note:

1. The report shall not be reproduced, except in full, without the written approval of the laboratory.
2. The results indicated above are based on the tests carried out on the samples colleted at site/received in the laboratory
3. Any Query regarding the report must be reported reported within 15days from the date of testing.
4. The material used in the site satisfied the standard of MORTH's 5th revision and hence can be used in the work.

Asst. Executive Engineer
Project Division
Yelahanka Zone
BBMP, Bangalore - 92

TEJUS CONSULTANTS

Consultant's Representative

TEJUS

BITUMEN CONTENT AND GRADATION DETERMINATION OF BITUMINOUS CONCRETE MIX

Name of Work	:	Developments works to be under taken in Ward No.05 of BBMP around Solid Waste Disposal Processing units Bellahalli, Bagaluru and Kattigenahalli Byatarayanapura Constituency.
Client	:	Bruhat Bengaluru Mahanagara Palike
Consultant	:	TEJUS CONSULTANTS Basaveshwar Nagar Bangalore
Contractor	:	AG Narayanaswamy
Date of Testing	:	24-03-2023
Type of Mix	:	BC
Sample I/D	:	BC2

DETERMINATION OF BITUMEN CONTENT

Description	Trail 1	Trail 2
1. Weight of Mixture before extraction, g	950	897
2. Weight of Mixture after extraction, g	899	850
3. Weight of Bitumen	51	47
4. Weight of filter paper before extraction, g	2.00	2.15
5. Weight of filter paper after extraction, g	4.10	4.00
6. Weight of fines, g	2.10	1.85
7. Weight of Bitumen & fines	53.10	48.85
8. Bitumen content in %	5.59	5.45
9. Average Bitumen content in %	**5.52**	
10. Minimum Bitumen content in %	**5.40**	

GRADATION FOR BC AFTER EXTRACTION

(As per MORT&H 500-18,Grading-2)

Sample Location:	Maruthi Layout Main Road	Date of Sampling:	24-03-2023
		Date of testing:	**24-03-2023**
Type of material & Purpose:	**BC**	Oven Dry Wt.(gms):	899.0

IS Sieve size in mm	Weight retained	Cummulative weight retained (gm)	Cummulative % of retained	Cummulative % of passing	Specification limits
19.00	0	0	0.00	100.00	100.00
13.20	77	77.0	8.57	91.43	79 - 100
9.50	112	189.0	21.02	78.98	71 - 95
4.75	109	298.0	33.15	66.85	53 - 71
2.360	141	439.0	48.83	51.17	42 - 58
1.180	123	562.0	62.51	37.49	34 - 48
0.600	77	639.0	71.08	28.92	26 - 38
0.300	86	725.0	80.65	19.35	18 - 28
0.150	56	781.0	86.87	13.13	12 - 20
0.075	58	839.0	93.33	6.67	4 - 10
Pan	60.0	899.0			
Total	899.0				

Note:
1. The report shall not be reproduced, except in full, without the written approval of the laboratory.
2. The results indicated above are based on the tests carried out on the samples collected at site/ received in the laboratory.
3. Any Query regarding the report must be reported reported within 15days from the date of testing.
4.The material used in the site satisfied the standard of MORTH's 5th revision and hence can be used in the work.

Asst. Executive Engineer, Project Division, Yelahanka Zone, BBMP, Bangalore - 92

TEJUS CONSULTANTS

Consultant's Representative

TEJUS

DETERMINATION OF RATE OF SPREAD TACK COAT				
Name of Work :	Developments works to be under taken in Ward No.05 of BBMP around Solid Waste Disposal Processing units Bellahalli, Bagaluru and Kattigenahalli Byatarayanapura Constituency.			
Client :	BRUHAT BANGALORE MAHANAGARA PALIKE			
Consultant :	M/s Tejus Consultants			
Contractor :	AG Narayanaswamy			
Date of Testing :	24-03-2023			
Type of Mix :	Tack coat			
Sample I/D :	2			
Location :	Maruthi Layout Main Road			
Determination	**Unit**	**Test No**		
		1	**2**	**3**
Location :	**Chainage**	**@75**	**@135**	**@180**
Size of Plate (mxm)	Mt	0.30 x .30	0.30 x .30	0.30 x .30
Area of Plate (a)	Sq.mtr	0.09	0.09	0.09
Initial Wt of empty Plate (b)	Kg	0.782	0.792	0.803
Final weight of plate after application of tack Coat (c)	Kg	0.805	0.815	0.826
Weight of tack Coat (d=c-b)	Kg	0.023	0.023	0.023
Rate of spread of tack coat	Kg/sq.m	0.253	0.254	0.252
Average	Kg/sq.m	0.253		
Specified Limit	Kg/sq.m	**0.250 Kg/sq.m**		

Note:
1. The report shall not be reproduced, except in full, without the written approval of the laboratory.
2. The results indicated above are based on the tests carried out on the samples collected at site/ received in the laboratory.
3. Any Query regarding the report must be reported reported within 15days from the date of testing.
4.The material used in the site satisfied the standard of MORTH's 5th revision and hence can be used in the work.

TEJUS CONSULTANTS

Authorised Signatory

Asst. Executive Engineer
Project Division
Yelahanka Zone
BBMP, Bangalore - 92

TEJUS
CONSULTANTS

DETERMINATION OF RATE OF SPREAD TACK COAT				
Name of Work :	Developments works to be under taken in Ward No.05 of BBMP around Solid Waste Disposal Processing units Bellahalli, Bagaluru and Kattigenahalli Byatarayanapura Constituency.			
Client :	BRUHAT BANGALORE MAHANAGARA PALIKE			
Consultant :	M/s Tejus Consultants			
Contractor :	AG Narayanaswamy			
Date of Testing :	24-03-23			
Type of Mix :	Tack coat			
Sample I/D :	1			
Location :	Maruthi Layout Main Road			
Determination	**Unit**	**Test No**		
		1	**2**	**3**
Loacation	**Chainage**	**@30**	**@60**	**@90**
Size of Plate (mxm)	Mt	0.30 x .30	0.30 x .30	0.30 x .30
Area of Plate (a)	Sq.mtr	0.09	0.09	0.09
Initial Wt of empty Plate (b)	Kg	0.788	776.000	0.802
Final weight of plate after application of tack Coat (c)	Kg	0.811	776.023	0.825
Weight of tack Coat (d=c-b)	Kg	0.023	0.023	0.023
Rate of spread of tack coat	Kg/sq.m	0.254	0.254	0.254
Average	Kg/sq.m	0.254		
Specified Limit	Kg/sq.m	**0.250 Kg/sq.m**		

Note:
1. The report shall not be reproduced, except in full, without the written approval of the laboratory.
2. The results indicated above are based on the tests carried out on the samples collected at site/ received in the laboratory
3. Any Query regarding the report must be reported reported within 15days from the date of testing.
4. The material used in the site satisfied the standard of MORTH's 5th revision and hence can be used in the work.

Consultant's Representative

Asst. Executive Engineer
Project Division
Yelahanka Zone
BBMP, Bangalore - 92

TEJUS
CONSULTANTS

BITUMEN CONTENT AND GRADATION DETERMINATION OF DENSE BITUMINOUS MACADAM MIX

Name of Work	:	Developments works to be under taken in Ward No.05 of BBMP around Solid Waste Disposal Processing units Bellahalli, Bagaluru and Kattigenahalli Byatarayanapura Constituency.
Client	:	Bruhat Bengaluru Mahanagara Palike
Consultant	:	TEJUS CONSULTANTS Basaveshwar Nagar Bangalore
Contractor	:	AG Narayanaswamy
Date of Testing	:	24-03-23
Type of Mix	:	DBM
Sample I/D	:	DBM-2

DETERMINATION OF BITUMEN CONTENT

Description	Trail 1	Trail 2
1. Weight of Mixture before extraction, g	885	952
2. Weight of Mixture after extraction, g	847	910
3. Weight of Bitumen	38	42
4. Weight of filter paper before extraction, g	2.00	2.00
5. Weight of filter paper after extraction, g	4.00	4.00
6. Weight of fines, g	2.00	2.00
7. Weight of Bitumen & fines	40.00	44.00
8. Bitumen content in %	4.52	4.62
9. Average Bitumen content in %	4.57	
10. Minimum Bitumen content in %	4.50	

GRADATION FOR DBM AFTER EXTRACTION

(As per MORT&H 500-10,Grading-2)

Sample Location:	Maruthi Layout Main Road	**Date of Sampling:**	24-03-23
		Date of testing:	24-03-23
Type of material & Purpose:	DBM	**Oven Dry Wt.(gms):**	847

IS Sieve size in mm	Weight retained	Cummulative weight retained (gm)	Cummulative % of retained	Cummulative % of passing	Specification limits
37.50	0.0	0.0	0.00	100.00	100.00
26.50	48.0	48.0	5.67	94.33	90-100
19.00	135.0	183.0	21.61	78.39	71-95
13.20	121.0	304.0	35.89	64.11	56-80
4.750	165.0	469.0	55.37	44.63	38-54
2.360	98.0	567.0	66.94	33.06	28-42
0.300	151.0	718.0	84.77	15.23	7-21
0.075	71.0	789.0	93.15	6.85	2-8
Pan	58.0	847.0			
Total	847.0				

Note:
1. The report shall not be reproduced, except in full, without the written approval of the laboratory.
2. The results indicated above are based on the tests carried out on the samples collected at site/ received in the laboratory.
3. Any Query regarding the report must be reported reported within 15days from the date of testing.
4.The material used in the site satisfied the standard of MORTH's 5th revision and hence can be used in the work.

Consultant's Representative

Asst. Executive Engineer,
Project Division
Yelahanka Zone
BBMP, Bangalore - 92

TEJUS CONSULTANTS
No. 45, Present BBMP No. 1204/45, Old no. 1204, 1st main, MRCR Layout, Bangalore 560040, Ph : 9611192254, 9611644110, tejusconsultants@gmail.com

TEJUS
CONSULTANTS

Test Report on Compressive Strength of Concrete Cubes

Project	Developments works to be under taken in Ward No.05 of BBMP around Solid Waste Disposal Processing units Bellahalli, Bagaluru and Kattigenahalli Byatarayanapura Constituency.
Client	Bruhat Bangalore Mahanagar Palike
Consultant	TEJUS CONSULTANTS
Contractor	Sri.A G Narayanaswamy
Location:	Cement
Grade of concrete:	M30
Size of cube:	150x150x150 mm
Reference IS code:	IS:516-1959
Sample Location	BASAVALINGAPPA NAGAR

Sl.No.	Date of Casting	Date of testing	Age of Test	Weight of Cube	Area of Cube	Failure load	Compressive strength	Avg. Compressive strength
				Kg	mm^2	KN	N/mm^2	N/mm^2
1	'21-03-2023	28-03-2023	7 days	8.824	22500	435	19.33	19.51
2	'21-03-2023	28-03-2023	7 days	8.832	22500	445	19.78	
3	'21-03-2023	28-03-2023	7 days	8.870	22500	437	19.42	

Remarks : ✓ Satisfactory / Not Satisfactory

Note:

1. The report shall not be reproduced, except in full, without the written approval of the laboratory.
2. The results indicated above are based on the tests carried out on the samples colleted at site/received in the laboratory.
3. Any Query regarding the report must be reported reported within 15days from the date of testing.
4. The material used in the site satisfied the standard of MORTH's 5th revision and hence can be used in the work.

TEJUS CONSULTANTS

Consultant's Representative

Asst. Executive Engineer
Project Division
Yelahanka Zone
BBMP, Bangalore - 92

TEJUS
CONSULTANTS

Test Report on Compressive Strength of Concrete Cubes

Project	Developments works to be under taken in Ward No.05 of BBMP around Solid Waste Disposal Processing units Bellahalli, Bagaluru and Kattigenahalli Byatarayanapura Constituency.
Client	Bruhat Bangalore Mahanagar Palike
Consultant	TEJUS CONSULTANTS
Contractor	Sri.A G Narayanaswamy
Location:	Cement
Grade of concrete:	M30
Size of cube:	150x150x150 mm
Reference IS code:	IS:516-1959
Sample Location	**1st cross Basavalingappa nagar**

Sl.No.	Date of Casting	Date of testing	Age of Test	Weight of Cube	Area of Cube	Failure load	Compressive strength	Avg. Compressive strength
				Kg	mm^2	KN	N/mm^2	N/mm^2
1	'21-03-2023	28-03-2023	7 days	8.824	22500	441	19.60	19.61
2	'21-03-2023	28-03-2023	7 days	8.832	22500	438	19.47	
3	'21-03-2023	28-03-2023	7 days	8.870	22500	445	19.78	

Remarks : Satisfactory / Not Satisfactory

Note:

1. The report shall not be reproduced, except in full, without the written approval of the laboratory.
2. The results indicated above are based on the tests carried out on the samples colleted at site/received in the laboratory.
3. Any Query regarding the report must be reported reported within 15days from the date of testing.
4. The material used in the site satisfied the standard of MORTH's 5th revision and hence can be used in the work.

TEJUS CONSULTANTS

Consultant's Representative

Asst. Executive Engineer
Project Division
Yelahanka Zone
BBMP, Bangalore - 92

TEJUS

Test Report on Compressive Strength of Concrete Cubes

Project	Developments works to be under taken in Ward No.05 of BBMP around Solid Waste Disposal Processing units Bellahalli, Bagaluru and Kattigenahalli Byatarayanapura Constituency.
Client	Bruhat Bangalore Mahanagar Palike
Consultant	TEJUS CONSULTANTS
Contractor	Sri.A G Narayanaswamy
Location:	Cement
Grade of concrete:	M30
Size of cube:	150x150x150 mm
Reference IS code:	IS:516-1959
Sample Location	**2ND cross Basavalingappa nagar**

Sl.No.	Date of Casting	Date of testing	Age of Test	Weight of Cube	Area of Cube	Failure load	Compressive strength	Avg. Compressive strength
				Kg	mm^2	KN	N/mm^2	N/mm^2
1	'21-03-2023	28-03-2023	7 days	8.824	22500	446	19.82	19.66
2	'21-03-2023	28-03-2023	7 days	8.832	22500	442	19.64	
3	'21-03-2023	28-03-2023	7 days	8.870	22500	439	19.51	

Remarks : ✓ Satisfactory / Not Satisfactory

Note:

1. The report shall not be reproduced, except in full, without the written approval of the laboratory.
2. The results indicated above are based on the tests carried out on the samples colleted at site/received in the laboratory.
3. Any Query regarding the report must be reported reported within 15days from the date of testing.
4. The material used in the site satisfied the standard of MORTH's 5th revision and hence can be used in the work.

TEJUS CONSULTANTS

Consultant's Representative

Asst. Executive Engineer
Project Division
Yelahanka Zone
BBMP, Bangalore - 92

TEJUS
CONSULTANTS

Project	Developments works to be under taken in Ward No.05 of BBMP around Solid Waste Disposal Processing units Bellahalli, Bagaluru and Kattigenahalli Byatarayanapura Constituency.		
Client	BRUHAT BANGALORE MAHANAGARA PALIKE		
Consultant	M/s Tejus Consultants		
Contractor	Sri.A G Narayanaswamy		
Field Dry Density test by Sand Replacement Method (As per IS 2720 (Part 28))			
Date of Testing	**31-03-2023**		
Layer no. or level	GSB layer		
Depth of hole	150mm		
Field density:	1	2	2
Chainage / Location	**Shrusti enclave@30**	**Shrusti enclave@60**	**Shrusti enclave@85**
Wt. of wet material from hole (Ww) gms.	5982	5973	5988
Wt. of sand+cylinder before pouring (w1) gms.	15000	15000	15000
Wt. of sand+cylinder after pouring (w2) gms.	10580	10576	10578
Wt. of sand in hole+ cone (w3) gms.	4420	4424	4422
Wt. of cone gms.	1080	1080	1080
Wt. of sand gms.	3340	3344	3342
Bulk density of sand (ys)gm/cc	1.32	1.32	1.32
Bulk density of material(i.e. wt. of the wet material) (yb)=(Ww/w4*(ys))gm/cc	2.36	2.36	2.37
Moisture meter reading(moisture content)	6.50	6.40	6.40
Result			
FDD(Wt.of the dry material)=(100yb/100+mc)gm/cc	2.22	2.22	2.22
MDD	2.25	2.25	2.25
OMC	6.30%	6.30%	6.30%
% compaction obtained	98.66	98.49	98.79
% compaction required	98%	98%	98%

Note:
1. The report shall not be reproduced, except in full, without the written approval of the laboratory.
2. The results indicated above are based on the tests carried out on the samples received in the laboratory/Site.
3. Any Query regarding the report must be reported reported within 15days from the date of testing.
4.The material used in the site satisfied the standard of MORTH's 5th revision and hence can be used in the work.

Authorised Signatory

Asst. Executive Engineer
Project Division
Yelahanka Zone
BBMP, Bangalore - 92

Project	Developments works to be under taken in Ward No. 195 of BBMP around Solid Waste Disposal Processing unit at Bellahalli, Bagaluru and Kattigenahalli Byatarayanapura Constituency
Client	Bruhat Bengaluru Mahanagara Palike
Consultant	TEJUS CONSULTANTS Basaveshwar Nagar Bangalore
Contractor	AG Narayanaswamy

Field Dry Density test by Sand Replacement Method (As per IS 2720 (Part 28)

Date: 05-04-2023

Layer no. or level	WMM I layer	
Depth of hole	200mm	
Field density:	**1**	**2**
Chainage / Location	**Srhusti enclave app road'@90**	**Srhusti enclave app road'@105**
Wt. of wet material from hole (Ww) gms.	5987	5981
Wt. of sand+cylinder before pouring (w1) gms.	15000	15000
Wt. of sand+cylinder after pouring (w2) gms.	10586	10593
Wt. of sand in hole+ cone (w3) gms.	4414	4407
Wt. of cone gms.	1080	1080
Wt. of sand gms.	3334	3327
Bulk density of sand (γs)gm/cc	1.32	1.32
Bulk density of material(i.e. wt. of the wet material) (γb)=(Ww/w4*(γs))gm/cc	2.37	2.37
Moisture meter reading(moisture content)	6.30	6.30
Result		
FDD(Wt.of the dry material)=(100γb/100+mc)gm/cc	2.23	2.23
MDD	2.27	2.27
OMC	6.10%	6.10%
% compaction obtained	98.23	98.34
% compaction required	98%	98%

Note:

1. The report shall not be reproduced, except in full, without the written approval of the laboratory.
2. The results indicated above are based on the tests carried out on the samples colleted at site/ received in the laboratory.
3. Any Query regarding the report must be reported reported within 15days from the date of testing.
4. The material used in the site satisfied the standard of MORTH's 5th revision and hence can be used in the work.

Consultant's Representative

Asst. Executive Engineer
Project Division
Yelahanka Zone
BBMP, Bangalore - 92

TEJUS
CONSULTANTS

Name of Work	:	Developments works to be under taken in Ward No.05 of BBMP around Solid Waste Disposal Processing units Bellahalli, Bagaluru and Kattigenahalli Byatarayanapura Constituency.
Client	:	Bruhat Bengaluru Mahanagara Palike
Consultant	:	TEJUS CONSULTANTS Basaveshwar Nagar Bangalore
Contractor	:	Sir AG Narayanaswamy
Date of Testing	:	05-04-2023
Type of Mix	:	WMM
Sample I/D	:	WMM 2

GRADATION FOR WMM
(As per MORT&H 400-11)

Sample Location:	Shusti enclave app road	Date of Sampling:	04-04-2023
		Date of testing:	05-04-2023
Type of material & Purpose:	WMM	Oven Dry Wt.(gms):	10000.0

IS Sieve size in mm	Weight retained	Cummulative weight retained (gm)	Cummulative % of retained	Cummulative % of passing	Specification limits
53	0	0	0.00	100.00	100.00
45	382	382	3.82	96.18	95-100
22.4	2315	2697	26.97	73.03	60-80
11.2	2498	5195	51.95	48.05	40-60
4.75	1485	6680	66.80	33.20	25-40
2.36	784	7464	74.64	25.36	15-30
0.6	865	8329	83.29	16.71	8.0-22.0
0.075	992	9321	93.21	6.79	0-8
Pan	679	10000			
Total	10000				

Note:

1. The report shall not be reproduced, except in full, without the written approval of the laboratory.
2. The results indicated above are based on the tests carried out on the samples colleted at site/received in the laboratory.
3. Any Query regarding the report must be reported reported within 15days from the date of testing.
4. The material used in the site satisfied the standard of MORTH's 5th revision and hence can be used in the work.

Asst. Executive Engineer
Project Division - 1
Yelahanka Zone
BBMP, Bangalore - 92

TEJUS CONSULTANTS

Consultant's Representative

Project	Developments works to be under taken in Ward No.05 of BBMP around Solid Waste Disposal Processing units Bellahalli, Bagaluru and Kattigenahalli Byatarayanapura Constituency.
Client	Bruhat Bengaluru Mahanagara Palike
Consultant	TEJUS CONSULTANTS Basaveshwar Nagar Bangalore
Contractor	AG Narayanaswamy

FLAKINESS AND ELONGATION INDICES (IS 2386, PART 1)

Type of Material	WMM	**Proposed Use**	**WMM**
Sample Location	Shusti enclave app road	**Date of Sampling**	**04-04-2023**
		Date of Testing	**05-04-2023**

Size of aggregate		**Flakiness Index**		**Elongation Index**	
Passing through IS sieve, mm	**Retained on IS sieve, mm**	**Total wt. of aggregate retained on sieves (A) gms.**	**Wt. of aggregate passing from Flakiness gauge (B) gms**	**Wt. of aggregate retained on Flakiness gauge (C) gms**	**Wt. of aggregate retained on Elongation gauge after retained on Flakiness gauge(D)gms**
63.0	50.0	0	0	0	0
50.0	40.0	0	0	0	0
40.0	31.5	0	0	0	0
31.5	25.0	0	0	0	0
25.0	20.0	0	0	0	0
20.0	16.0	613	83	523	73
16.0	12.5	1131	120	978	117
12.5	10.0	777	57	722	50
10.0	6.3	614	67	568	48
Total		**3135**	**327**	**2791**	**288**

Note: Minimum 200 Pcs should be taken on each fraction of test

Flakiness Index(%):	10.43
Elongation Index(%):	10.32
Combined FI+EL (%)	20.75

Note:

1. The report shall not be reproduced, except in full, without the written approval of the laboratory.
2. The results indicated above are based on the tests carried out on the samples colleted at site/ received in the laboratory.
3. Any Query regarding the report must be reported reported within 15days from the date of testing.
4. The material used in the site satisfied the standard of MORTH's 5th revision and hence can be used in the work.

Consultant's Representative

Asst. Executive Engineer
Project Division
Yelahanka Zone
BBMP, Bangalore - 92

TEJUS
CONSULTANTS

BITUMEN CONTENT AND GRADATION DETERMINATION OF DENSE BITUMINOUS MACADAM MIX

Name of Work	:	Developments works to be under taken in Ward No.05 of BBMP around Solid Waste Disposal Processing units Bellahalli, Bagaluru and Kattigenahalli Byatarayanapura Constituency.
Client	:	Bruhat Bengaluru Mahanagara Palike
Consultant	:	TEJUS CONSULTANTS Basaveshwar Nagar Bangalore
Contractor	:	AG Narayanaswamy
Date of Testing	:	10-04-23
Type of Mix	:	DBM
Sample I D	:	DBM-1

DETERMINATION OF BITUMEN CONTENT

Description	Trail 1	Trail 2
1. Weight of Mixture before extraction, g	894	938
2. Weight of Mixture after extraction, g	855	897
3. Weight of Bitumen	39	41
4. Weight of filter paper before extraction, g	2.00	2.00
5. Weight of filter paper after extraction, g	4.00	4.00
6. Weight of fines, g	2.00	2.00
7. Weight of Bitumen & fines	41.00	43.00
8. Bitumen content in %	4.59	4.58
9. Average Bitumen content in %	4.59	
10. Minimum Bitumen content in %	4.50	

GRADATION FOR DBM AFTER EXTRACTION

(As per MORT&H 500-10,Grading-2)

Sample Location:	Shrusti Enclave App Road	**Date of Sampling:**	10-04-23
		Date of testing:	10-04-23
Type of material & Purpose:	DBM	**Oven Dry Wt.(gms):**	855

IS Sieve size in mm	Weight retained	Cummulative weight retained (gm)	Cummulative % of retained	Cummulative % of passing	Specification limits
37.50	0.0	0.0	0.00	100.00	100.00
26.50	45.0	45.0	5.26	94.74	90-100
19.00	123.0	168.0	19.65	80.35	71-95
13.20	122.0	290.0	33.92	66.08	56-80
4.750	128.0	418.0	48.89	51.11	38-54
2.360	132.0	550.0	64.33	35.67	28-42
0.300	175.0	725.0	84.80	15.20	7-21
0.075	71.0	796.0	93.10	6.90	2-8
Pan	52.0	848.0			
Total	855.0				

Note:

1. The report shall not be reproduced, except in full, without the written approval of the laboratory.
2. The results indicated above are based on the tests carried out on the samples collected at site/ received in the laboratory.
3. Any Query regarding the report must be reported reported within 15days from the date of testing.
4. The material used in the site satisfied the standard of MORTH's 5th revision and hence can be used in the work.

Asst. Executive Engineer
Project Division
Yelahanka Zone
BBMP, Bangalore - 92

Consultant's Representative

TEJUS CONSULTANTS

TEJUS
CONSULTANTS

BITUMEN CONTENT AND GRADATION DETERMINATION OF BITUMINOUS CONCRETE MIX

Name of Work	:	Developments works to be under taken in Ward No.05 of BBMP around Solid Waste Disposal Processing units Bellahalli, Bagaluru and Kattigenahalli Byatarayanapura Constituency.
Client	:	Bruhat Bengaluru Mahanagara Palike
Consultant	:	TEJUS CONSULTANTS Basaveshwar Nagar Bangalore
Contractor	:	AG Narayanaswamy
Date of Testing	:	13-04-2023
Type of Mix	:	BC
Sample I/D	:	BC1

DETERMINATION OF BITUMEN CONTENT

Description	Trail 1	Trail 2
1. Weight of Mixture before extraction, g	948	898
2. Weight of Mixture after extraction, g	898	850
3. Weight of Bitumen	50	48
4. Weight of filter paper before extraction, g	2.00	2.15
5. Weight of filter paper after extraction, g	4.10	4.00
6. Weight of fines, g	2.10	1.85
7. Weight of Bitumen & fines	52.10	49.85
8. Bitumen content in %	5.50	5.55
9. Average Bitumen content in %	**5.52**	
10. Minimum Bitumen content in %	**5.40**	

GRADATION FOR BC AFTER EXTRACTION

(As per MORT&H 500-18,Grading-2)

Sample Location:	Shrusti Enclave App Road	Date of Sampling:	**13-04-2023**	
		Date of testing:	**13-04-2023**	
Type of material & Purpose:	**BC**	Oven Dry Wt.(gms):	898.0	

IS Sieve size in mm	Weight retained	Cummulative weight retained (gm)	Cummulative % of retained	Cummulative % of passing	Specification limits
19.00	0	0	0.00	100.00	100.00
13.20	88	88.0	9.80	90.20	79 - 100
9.50	122	210.0	23.39	76.61	71 - 95
4.75	97	307.0	34.19	65.81	53 - 71
2.360	118	425.0	47.33	52.67	42 - 58
1.180	112	537.0	59.80	40.20	34 - 48
0.600	96	633.0	70.49	29.51	26 - 38
0.300	64	697.0	77.62	22.38	18 - 28
0.150	52	749.0	83.41	16.59	12 - 20
0.075	92	841.0	93.65	6.35	4 - 10
Pan	57.0	898.0			
Total	898.0				

Note:
1. The report shall not be reproduced, except in full, without the written approval of the laboratory.
2. The results indicated above are based on the tests carried out on the samples received in the laboratory/Site.
3. Any Query regarding the report must be reported reported within 15days from the date of testing.
4.The material used in the site satisfied the standard of MORTH's 5th revision and hence can be used in the work.

Asst. Executive Engineer
Project Division
Yelachanka Zone
BBMP, Bangalore - 92

TEJUS CONSULTANTS

Consultant's Representative

TEJUS
CONSULTANTS

DETERMINATION OF RATE OF SPREAD TACK COAT				
Name of Work :	Developments works to be under taken in Ward No.05 of BBMP around Solid Waste Disposal Processing units Bellahalli, Bagaluru and Kattigenahalli Byatarayanapura Constituency.			
Client :	BRUHAT BANGALORE MAHANAGARA PALIKE			
Consultant :	M/s Tejus Consultants			
Contractor :	AG Narayanaswamy			
Date of Testing :	13-04-2023			
Type of Mix :	Tack coat			
Sample I/D :	1			
Location :	Shrusti Enclave App Road			
Determination	**Unit**	**Test No**		
		1	**2**	**3**
Location :	**Chainage**	**@45**	**@90**	**@105**
Size of Plate (mxm)	Mt	0.30 x .30	0.30 x .30	0.30 x .30
Area of Plate (a)	Sq.mtr	0.09	0.09	0.09
Initial Wt of empty Plate (b)	Kg	0.756	0.781	0.778
Final weight of plate after application of tack Coat (c)	Kg	0.779	0.804	0.801
Weight of tack Coat (d=c-b)	Kg	0.023	0.023	0.023
Rate of spread of tack coat	Kg/sq.m	0.253	0.253	0.252
Average	Kg/sq.m	0.253		
Specified Limit	Kg/sq.m	**0.250 Kg/sq.m**		

Note:
1. The report shall not be reproduced, except in full, without the written approval of the laboratory.
2. The results indicated above are based on the tests carried out on the samples collected at site/ received in the laboratory.
3. Any Query regarding the report must be reported reported within 15days from the date of testing.
4.The material used in the site satisfied the standard of MORTH's 5th revision and hence can be used in the work.

Authorised Signatory

Asst. Executive Engineer
Project Division
Yelahanka Zone
BBMP, Bangalore - 92

DETERMINATION OF RATE OF SPREAD TACK COAT

Name of Work :	Developments works to be under taken in Ward No 05 of BBMP around Solid Waste Disposal Processing units Bellahalli, Bagalakunte and Kattigenahalli Byatarayanapura Constituency.
Client :	BRUHAT BANGALORE MAHANAGARA PALIKE
Consultant :	M/s Tejus Consultants
Contractor :	AG Narayanaswamy
Date of Testing :	14-08-2022
Type of Mix :	Tack coat
Sample I/D :	4
Location :	Bellahalli Cross ROAD

Determination	Unit	Test No		
		1	2	3
Loacation	**Chainage**	**@50**	**@80**	**@150**
Size of Plate (mxm)	Mt	0.30 x .30	0.30 x .30	0.30 x .30
Area of Plate (a)	Sq.mtr	0.09	0.09	0.09
Initial Wt of empty Plate (b)	Kg	0.784	0.803	0.796
Final weight of plate after application of tack Coat (c)	Kg	0.807	0.826	0.819
Weight of tack Coat (d=c-b)	Kg	0.023	0.023	0.023
Rate of spread of tack coat	Kg/sq.m	0.251	0.251	0.250
Average	Kg/sq.m	0.251		
Specified Limit	Kg/sq.m	**0.250 Kg/sq.m**		

Note:

1. The report shall not be reproduced, except in full, without the written approval of the laboratory.
2. The results indicated above are based on the tests carried out on the samples collected at site/ received in the laboratory.
3. Any Query regarding the report must be reported reported within 15days from the date of testing.
4. The material used in the site satisfied the standard of MORTH's 5th revision and hence can be used in the work

Asst. Executive Engineer
Project Division
Yelahanka Zone
BBMP, Bangalore - 92

Authorised Signatory

TEJUS CONSULTANTS
No. 45, Present BBMP No. 1204/45, Old no. 1204, 1st main, MRCR Layout, Bangalore 560040, Ph : 9611192254, 9611644110, tejusconsultants@gmail.com

TEJUS
CONSULTANTS

DETERMINATION OF RATE OF SPREAD TACK COAT

Name of Work :	Developments works to be under taken in Ward No.05 of BBMP around Solid Waste Disposal Processing units Bellahalli, Bagaluru and Kattigenahalli Byatarayanapura Constituency.
Client :	BRUHAT BANGALORE MAHANAGARA PALIKE
Consultant :	M/s Tejus Consultants
Contractor :	AG Narayanaswamy
Date of Testing :	14-08-2022
Type of Mix :	Tack coat
Sample I/D :	2
Location :	Green Land Layout

Determination	**Unit**	**Test No**		
		1	**2**	**3**
Loacation	**Chainage**	**@45**	**@55**	**@75**
Size of Plate (mxm)	Mt	0.30 x .30	0.30 x .30	0.30 x .30
Area of Plate (a)	Sq.mtr	0.09	0.09	0.09
Initial Wt of empty Plate (b)	Kg	0.756	0.781	0.785
Final weight of plate after application of tack Coat (c)	Kg	0.780	0.802	0.809
Weight of tack Coat (d=c-b)	Kg	0.024	0.021	0.024
Rate of spread of tack coat	Kg/sq.m	0.267	0.233	0.267
Average	Kg/sq.m	0.256		
Specified Limit	Kg/sq.m	**0.250 Kg/sq.m**		

Note:

1. The report shall not be reproduced, except in full, without the written approval of the laboratory.
2. The results indicated above are based on the tests carried out on the samples collected at site/ received in the laboratory.
3. Any Query regarding the report must be reported reported within 15days from the date of testing.
4. The material used in the site satisfied the standard of MORTH's 5th revision and hence can be used in the work

Asst. Executive Engineer
Project Division
Yelahanka Zone
BBMP, Bangalore - 92

Authorised Signatory

TEJUS
CONSULTANTS

BITUMEN CONTENT AND GRADATION DETERMINATION OF DENSE BITUMINOUS MACADAM MIX

Name of Work	:	Developments works to be under taken in Ward No.05 of BBMP around Solid Waste Disposal Processing units Bellahalli, Bagaluru and Kattigenahalli Byatarayanapura Constituency.
Client	:	Bruhat Bengaluru Mahanagara Palike
Consultant	:	TEJUS CONSULTANTS Basaveshwar Nagar Bangalore
Contractor	:	AG Narayanaswamy
Date of Testing	:	14-08-2022
Type of Mix	:	DBM
Sample I/D	:	DBM-1

DETERMINATION OF BITUMEN CONTENT

Description	Trail 1	Trail 2
1. Weight of Mixture before extraction, g	855	946
2. Weight of Mixture after extraction, g	818	905
3. Weight of Bitumen	37	41
4. Weight of filter paper before extraction, g	2.00	2.00
5. Weight of filter paper after extraction, g	4.00	4.00
6. Weight of fines, g	2.00	2.00
7. Weight of Bitumen & fines	39.00	43.00
8. Bitumen content in %	4.56	4.55
9. Average Bitumen content in %	4.55	
10. Minimum Bitumen content in %	4.50	

GRADATION FOR DBM AFTER EXTRACTION

(As per MORT&H 500-10,Grading-2)

Sample Location:	Greenland Layout	**Date of Sampling:**	**14-08-2022**
		Date of testing:	**14-08-2022**
Type of material & Purpose:	DBM	**Oven Dry Wt.(gms):**	818

IS Sieve size in mm	Weight retained	Cummulative weight retained (gm)	Cummulative % of retained	Cummulative % of passing	Specification limits
37.50	0.0	0.0	0.00	100.00	100.00
26.50	45.0	45.0	5.50	94.50	90-100
19.00	132.0	177.0	21.64	78.36	71-95
13.20	112.0	289.0	35.33	64.67	56-80
4.750	153.0	442.0	54.03	45.97	38-54
2.360	96.0	538.0	65.77	34.23	28-42
0.300	185.0	723.0	88.39	11.61	7-21
0.075	38.0	761.0	93.03	6.97	2-8
Pan	36.0	797.0			
Total	818.0				

Note:
1. The report shall not be reproduced, except in full, without the written approval of the laboratory.
2. The results indicated above are based on the tests carried out on the samples collected at site/ received in the laboratory.
3. Any Query regarding the report must be reported reported within 15days from the date of testing.
4.The material used in the site satisfied the standard of MORTH's 5th revision and hence can be used in the work.

Asst. Executive Engineer
Project Division
Yelahanka Zone
BBMP, Bangalore - 92

TEJUS CONSULTANTS

Consultant's Representative

TEJUS
CONSULTANTS

Project	Developments works to be under taken in Ward No.05 of BBMP around Solid Waste Disposal Processing units Bellahalli, Bagaluru and Kattigenahalli Byatarayanapura Constituency.
Client	Bruhat Bengaluru Mahanagara Palike
Consultant	TEJUS CONSULTANTS
Contractor	AG Narayanaswamy

AGGREGATE IMPACT VALUE (IS: 2386 Part - 4)

Proposed Use	DBM	**Date of Sampling**	**14-08-2022**
Sample Location	At plant	**Date of Testing**	**14-08-2022**

Sl. No.	Description		Test No. 1	Test No. 2	Test No. 3	Spec Limit (%)
1	Wt. of stone pieces (dry) passing IS Sieve 12.5mm but retained in IS sieve 10mm (gm)	(Wa)	348.00	366.00	344.00	
2	Wt. of the fraction retained in IS sieve 2.36mm after the impact test (gm)	(Wb)	262.00	276.00	257.00	
3	Wt. of the fraction passed in IS sieve 2.36mm after the impact test (gm)	(Wc)	86.00	90.00	87.00	
4	Aggregate Impact Value (%)	(Wc/Wa)*100	24.71	24.59	25.29	
5	Average Aggregate impact value	(%)	24.86			Max - 30 %

Remarks : Satisfactory / Not Satisfactory

Note:
1. The report shall not be reproduced, except in full, without the written approval of the laboratory.
2. The results indicated above are based on the tests carried out on the samples collected at site/ received in the laboratory.
3. Any Query regarding the report must be reported reported within 15days from the date of testing.
4.The material used in the site satisfied the standard of MORTH's 5th revision and hence can be used in the work.

Asst. Executive Engineer
Project Division
Yelahanka Zone
BBMP, Bangalore - 92

TEJUS CONSULTANTS

Consultant's Representative

TEJUS
CONSULTANTS

Project	Developments works to be under taken in Ward No.05 of BBMP around Solid Waste Disposal Processing units Bellahalli, Bagaluru and Kattigenahalli Byatarayanapura Constituency.
Client	Bruhat Bengaluru Mahanagara Palike
Consultant	TEJUS CONSULTANTS
Contractor	AG Narayanaswamy

FLAKINESS AND ELONGATION INDICES (IS 2386, PART 1)

Type of Material	DBM		Proposed Use	DBM
Sample Location	At plant		Date of Sampling	14-08-2022
			Date of Testing	14-08-2022

Size of aggregate		Flakiness Index		Elongation Index	
Passing through IS sieve, mm	Retained on IS sieve, mm	Total wt. of aggregate retained on sieves (A) gms.	Wt. of aggregate passing from Flakiness gauge (B) gms	Wt. of aggregate retained on Flakiness gauge (C) gms	Wt. of aggregate retained on Elongation gauge after retained on Flakiness gauge(D)gms
63.0	50.0	0	0	0	0
50.0	40.0	0	0	0	0
40.0	31.5	7412	678	7021	343
31.5	25.0	4231	253	3532	284
25.0	20.0	2448	225	1891	225
20.0	16.0	1522	321	966	263
16.0	12.5	576	105	467	201
12.5	10.0	491	109	265	88
10.0	6.3	125	86	80	66
Total		**16805**	**1777**	**14222**	**1470**

Results

Flakiness Index(%):	10.57
Elongation Index(%):	10.34
Combined FI+EL (%)	20.91

Note:
1. The report shall not be reproduced, except in full, without the written approval of the laboratory.
2. The results indicated above are based on the tests carried out on the samples collected at site/ received in the laboratory.
3. Any Query regarding the report must be reported reported within 15days from the date of testing.
4.The material used in the site satisfied the standard of MORTH's 5th revision and hence can be used in the work.

Asst. Executive Engineer
Project Division
Yelahanka Zone
BBMP, Bangalore - 92

TEJUS CONSULTANTS

Consultant's Representative

TEJUS CONSULTANTS

Test Report on Compressive Strength of Concrete Cubes

Project	Developments works to be under taken in Ward No.05 of BBMP around Solid Waste Disposal Processing units Bellahalli, Bagaluru and Kattigenahalli Byatarayanapura Constituency.
Client	Bruhat Bangalore Mahanagar Palike
Consultant	TEJUS CONSULTANTS
Contractor	Sri.A G Narayanaswamy
Location:	Cement
Grade of concrete:	M30
Size of cube:	150x150x150 mm
Reference IS code:	IS:516-1959
Sample Location	**1st cross Basavalingappa nagar**

Sl.No.	Date of Casting	Date of testing	Age of Test	Weight of Cube	Area of Cube	Failure load	Compressive strength	Avg. Compressive strength
				Kg	mm^2	KN	N/mm^2	N/mm^2
1	'21-03-2023	18-04-2023	28 days	8.428	22500	685	30.44	30.55
2	'21-03-2023	18-04-2023	28 days	8.246	22500	688	30.58	
3	'21-03-2023	18-04-2023	28 days	8.328	22500	689	30.62	

Remarks : ✓ Satisfactory / Not Satisfactory

Asst. Executive Engineer
Project Division
Yelahanka Zone
BBMP, Bangalore - 92

Consultant's Representative

TEJUS
CONSULTANTS

Test Report on Compressive Strength of Concrete Cubes

Project	Developments works to be under taken in Ward No.05 of BBMP around Solid Waste Disposal Processing units Bellahalli, Bagaluru and Kattigenahalli Byatarayanapura Constituency.
Client	Bruhat Bangalore Mahanagar Palike
Consultant	TEJUS CONSULTANTS
Contractor	Sri.A G Narayanaswamy
Location:	Cement
Grade of concrete:	M30
Size of cube:	150x150x150 mm
Reference IS code:	IS:516-1959
Sample Location	BASAVALINGAPPA NAGAR

Sl.No.	Date of Casting	Date of testing	Age of Test	Weight of Cube	Area of Cube	Failure load	Compressive strength	Avg. Compressive strength
				Kg	mm^2	KN	N/mm^2	N/mm^2
1	'21-03-2023	18-04-2023	28 days	8.824	22500	685	30.44	30.44
2	'21-03-2023	18-04-2023	28 days	8.832	22500	682	30.31	
3	'21-03-2023	18-04-2023	28 days	8.870	22500	688	30.58	

Remarks : ✓ Satisfactory / Not Satisfactory

Note:

1. The report shall not be reproduced, except in full, without the written approval of the laboratory.
2. The results indicated above are based on the tests carried out on the samples colleted at site/received in the laboratory.
3. Any Query regarding the report must be reported reported within 15days from the date of testing.
4. The material used in the site satisfied the standard of MORTH's 5th revision and hence can be used in the works.

Asst. Executive Engineer
Project Division
Yelahanka Zone
BBMP, Bangalore - 92

TEJUS CONSULTANTS

Consultant's Representative

TEJUS CONSULTANTS

Test Report on Compressive Strength of Concrete Cubes

Project	Developments works to be under taken in Ward No.05 of BBMP around Solid Waste Disposal Processing units Bellahalli, Bagaluru and Kattigenahalli Byatarayanapura Constituency.
Client	Bruhat Bangalore Mahanagar Palike
Consultant	TEJUS CONSULTANTS
Contractor	Sri.A G Narayanaswamy
Location:	Cement
Grade of concrete:	M30
Size of cube:	150x150x150 mm
Reference IS code:	IS:516-1959
Sample Location	**2ND cross Basavalingappa nagar**

Sl.No.	Date of Casting	Date of testing	Age of Test	Weight of Cube	Area of Cube	Failure load	Compressive strength	Avg. Compressive strength
				Kg	mm^2	KN	N/mm^2	N/mm^2
1	'21-03-2023	18-04-2023	28 days	8.586	22500	688	30.58	30.49
2	'21-03-2023	18-04-2023	28 days	8.742	22500	679	30.18	
3	'21-03-2023	18-04-2023	28 days	8.468	22500	691	30.71	

Remarks : ✓ Satisfactory / Not Satisfactory

Asst. Executive Engineer
Project Division
Yelahanka Zone
BBMP, Bangalore - 92

TEJUS CONSULTANTS

Consultant's Representative

TEJUS
CONSULTANTS

BITUMEN CONTENT AND GRADATION DETERMINATION OF BITUMINOUS CONCRETE MIX

Name of Work	:	Developments works to be under taken in Ward No.05 of BBMP around Solid Waste Disposal Processing units Bellahalli, Bagaluru and Kattigenahalli Byatarayanapura Constituency.
Client	:	Bruhat Bengaluru Mahanagara Palike
Consultant	:	TEJUS CONSULTANTS Basaveshwar Nagar Bangalore
Contractor	:	AG Narayanaswamy
Date of Testing	:	19-08-2022
Type of Mix	:	BC
Sample I/D	:	BC3

DETERMINATION OF BITUMEN CONTENT

Description	Trail 1	Trail 2
1. Weight of Mixture before extraction, g	978	934
2. Weight of Mixture after extraction, g	926	885
3. Weight of Bitumen	52	49
4. Weight of filter paper before extraction, g	2.00	2.15
5. Weight of filter paper after extraction, g	4.00	4.00
6. Weight of fines, g	2.00	1.85
7. Weight of Bitumen & fines	54.00	50.85
8. Bitumen content in %	5.52	5.44
9. Average Bitumen content in %	**5.48**	
10. Minimum Bitumen content in %	**5.40**	

GRADATION FOR BC AFTER EXTRACTION
(As per MORT&H 500-18,Grading-2)

Sample Location:	Bellahalli Cross ROAD	Date of Sampling:	19-08-2022
		Date of testing:	19-08-2022
Type of material & Purpose:	BC	Oven Dry Wt.(gms):	926.0

IS Sieve size in mm	Weight retained	Cummulative weight retained (gm)	Cummulative % of retained	Cummulative % of passing	Specification limits
19.00	0	0	0.00	100.00	100.00
13.20	87	87.0	9.40	90.60	79 - 100
9.50	115	202.0	21.81	78.19	71 - 95
4.75	98	300.0	32.40	67.60	53 - 71
2.360	125	425.0	45.90	54.10	42 - 58
1.180	143	568.0	61.34	38.66	34 - 48
0.600	88	656.0	70.84	29.16	26 - 38
0.300	76	732.0	79.05	20.95	18 - 28
0.150	67	799.0	86.29	13.71	12 - 20
0.075	66	865.0	93.41	6.59	4 - 10
Pan	61.0	926.0			
Total	926.0				

Note:
1. The report shall not be reproduced, except in full, without the written approval of the laboratory.
2. The results indicated above are based on the tests carried out on the samples collected at site/ received in the laboratory.
3. Any Query regarding the report must be reported reported within 15days from the date of testing.
4.The material used in the site satisfied the standard of MORTH 5th revision and hence can be used in the work.

Asst. Executive Engineer
Project Division
Yelahanka Zone
BBMP, Bangalore - 92

TEJUS CONSULTANTS

Consultant's Representative

TEJUS

Project	Developments works to be under taken in Ward No.05 of BBMP around Solid Waste Disposal Processing units Bellahalli, Bagalaru and Kattigenahalli Byatarayanapura Constituency
Client	Bruhat Bengaluru Mahanagara Palike
Consultant	TEJUS CONSULTANTS
Contractor	AG Narayanaswamy

FLAKINESS AND ELONGATION INDICES (IS 2386, PART 1)

Type of Material	BC	Proposed Use	BC
Sample Location	At plant	Date of Sampling	19-08-2022
		Date of Testing	19-08-2022

Size of aggregate		Flakiness Index		Elongation Index	
Passing through IS sieve, mm	Retained on IS sieve, mm	Total wt. of aggregate retained on sieves (A) gms.	Wt. of aggregate passing from Flakiness gauge (B) gms	Wt. of aggregate retained on Flakiness gauge (C) gms	Wt. of aggregate retained on Elongation gauge after retained on Flakiness gauge(D)gms
63.0	50.0	0	0	0	0
50.0	40.0	0	0	0	0
40.0	31.5	0	0	0	0
31.5	25.0	0	0	0	0
25.0	20.0	0	0	0	0
20.0	16.0	962	85	955	81
16.0	12.5	1289	121	1252	113
12.5	10.0	502	67	452	67
10.0	6.3	488	68	421	59
Total		3241	341	3080	320

Note: Minimum 200 Pcs should be taken on each fraction of test

Flakiness Index(%):	10.52
Elongation Index(%):	10.39
Combined FI+EL (%)	20.91

Note:
1. The report shall not be reproduced, except in full, without the written approval of the laboratory.
2. The results indicated above are based on the tests carried out on the samples collected at site/received in the laboratory.
3. Any Query regarding the report must be reported reported within 15days from the date of testing.
4.The material used in the site satisfied the standard of MORTH's 5th revision and hence can be used in the work.

Asst. Executive Engineer
Project Division
Yelahanka Zone
BBMP, Bangalore - 92

TEJUS CONSULTANTS

Consultant's Representative

TEJUS
CONSULTANTS

Project	Developments works to be under taken in Ward No.05 of BBMP around Solid Waste Disposal Processing units Bellahalli, Bagaluru and Kattigenahalli Byatarayanapura Constituency.
Client	Bruhat Bengaluru Mahanagara Palike
Consultant	TEJUS CONSULTANTS Basaveshwar Nagar Bangalore
Contractor	AG Narayanaswamy

AGGREGATE IMPACT VALUE (IS: 2386 Part - 4)

Proposed Use	BC	**Date of Sampling**	**19-08-2022**
Sample Location	At plant	**Date of Testing**	**19-08-2022**

Sl. No.	Description		Test No. 1	Test No. 2	Test No. 3	Spec Limit (%)
1	Wt. of stone pieces (dry) passing IS Sieve 12.5mm but retained in IS sieve 10mm (gm)	(Wa)	391.00	382.00	354.00	
2	Wt. of the fraction retained in IS sieve 2.36mm after the impact test (gm)	(Wb)	302.00	297.00	275.00	
3	Wt. of the fraction passed in IS sieve 2.36mm after the impact test (gm)	(Wc)	89.00	85.00	79.00	
4	Aggregate Impact Value (%)	(Wc/Wa)*100	22.76	22.25	22.32	
5	Average Aggregate impact value	(%)	22.44			Max - 30 %

Remarks : ✓ Satisfactory / Not Satisfactory

Note:
1. The report shall not be reproduced, except in full, without the written approval of the laboratory.
2. The results indicated above are based on the tests carried out on the samples collected at site/ received in the laboratory.
3. Any Query regarding the report must be reported reported within 15days from the date of testing.
4.The material used in the site satisfied the standard of MORTH's 5th revision and hence can be used in the work.

TEJUS CONSULTANTS

Consultant's Representative

Assistant Executive Engineer
Project Division
Yelahanka Zone
BBMP, Bangalore -92